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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,206	08/16/2001	Claude Basso	RAL920000105US1	2372
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IBM CORPORATION PO BOX 12195 DEPT YXSA, BLDG 002 RESEARCH TRIANGLE PARK, NC 27709			BHANDARI, PUNEET	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/931,206

Applicant(s)

BASSO ET AL.

Examiner

Puneet Bhandari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-39 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/16/2001.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 24 & 39 are objected to because of the following informalities:

Regarding claim 24, it is a substantial duplicate of claim 12.

Regarding claim 39, a step (d) should be appropriately labeled as step (c).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Malagrino et al. (US 6,714,985) in view of Schroder et al.

Regarding claims **1**, Malagrino et al. teaches a method for routing a datagram (packet 210) that has been fragmented into a plurality of fragments (smaller fragments 212) utilizing content-based routing (CoS) information included in one or more fragments of the plurality of fragments. The reference teaches packet 210 is fragmented to plurality of smaller fragments in a switch which uses Class of Service Information to route the data packet disclosed in column 5, lines 48-67, column 6, lines 1-6, lines 62-67 and column 7 lines 1-5.

(a) The limitation generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame

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Buffer 420 used to store fragment as disclosed in column 7, lines 31-62 and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(b) The limitation caching received fragments (store fragments) while the context is set passive is taught by a Frame Buffer is used to store fragment until all the fragments of the fragmented packet are received as disclosed in column 7, lines 31-62 & column 8, lines 44-60.

(c) The limitation determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received is taught by bit mask information indicating the switching fabric where to forward the frame as disclosed in column 6, lines 62-66 and column 7, lines 1- 5 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

(d) The limitation routing any cached fragments and subsequently received fragments of the datagram to the determined destination while the context is active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them

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into a datagram (see column 2, lines 30-58). At the time invention was made it would have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

Regarding claims **2, 14 & 26**, limitation the routing step routes the subsequently received fragments without caching subsequently received fragment is taught by if the received frame is not fragmented it is forwarded immediately to data management engine as disclosed in column 8, lines 40-60 of Malagrino et al.

Regarding claims **3, 15 & 27**, the limitation wherein content based routing information is included in a sequentially first fragment of the datagram is taught by first fragment is determined by a predetermined COS value disclosed in column 10, lines 30-43 of Malagrino et al.

Regarding claims **4, 16 & 28**, the limitation the routing step further comprises routing the sequentially first fragment to the determined destination before any cached fragment is taught by step 912 in fig 9 and also disclosed in column 13, lines 20-33 of Malagrino et al.

Regarding claims **5, 17 & 29**, the limitation the routing step further comprises routing a sequentially last fragment of the plurality of fragment of the datagram to the determined destination after all other of plurality of fragments have been routed to the

determined destination is taught by step 916 in fig 9 and also disclosed in column 13, lines 20-35 of Malagrino et al.

Regarding claims **6, 18 & 30**, the limitation the method comprising a step of tracking an aggregate length of the plurality of fragments by incrementing a fragment byte counter by a data length of each fragment of the datagram is taught by using the pointer the plurality of the fragments are tracked as disclosed in column 11, lines 1-15.

Regarding claims **7, 19 & 31**, the limitation a step of identifying whether the plurality of fragments of the datagram have been processed is disclosed in column 11, lines 1-15.

The limitation calculating a total length of the sequentially last fragment by adding its fragment offset and its data length is disclosed in column 10, lines 65; and

The limitation comparing the aggregate length against the total length of the sequentially last fragment. Is taught by comparing the packet total length with the packet current length as disclosed in column 11, lines 40-60.

Regarding claims **8, 20 & 32**, the limitation a step of starting a timer upon generating the context for identifying a time period that the datagram is allowed to be on a network is taught by timer expiration time which specifies the time period that packet is allowed on a network as disclosed in column 13, lines 35-45.

Regarding claims **9, 21 & 33**, the limitation discarding any cached fragments upon expiration of the timer is taught by deletion of packet after timer expiration as disclosed in column 13, lines 35-45.

Regarding claims **10,22 & 34**, the limitation step of discarding any cached fragments if the content-based routing information is not received is taught by step 904 & step 906 in fig. 9.

Regarding claims **11,23 & 35**, the limitation a step of providing a fragment queue associated with the context for the datagram for caching the fragments is taught by frame buffer is organized into eight (8) queues as disclosed in column 8, lines 10-15.

Regarding claim **12, 24 & 36**, the limitation content-based routing information consists of one or more of Internet Protocol (IP) header (IP header portion 110) disclosed in column 2, lines 20-43 ,Transmission Control Protocol (TCP) disclosed in column 2, lines 60-65), Universal Resource Locators (URL) and one or more cookies of the datagram disclosed in column 4 lines 39-43.

Regarding claim **13**, Fig. 2 Malagrino et al. teaches a system for routing a datagram that has been fragmented into a plurality of fragments (212) utilizing content-based (Class of Service) routing information included in one or more fragments of the plurality of fragments also disclosed in column 6, lines 62-67 and column 7, lines 1-5, the system comprising:

(a) The limitation a receiving mechanism for receiving the plurality of fragments of the datagram is taught by host H2 receiving the packet which has been fragmented into plurality of fragments as disclosed in Fig 2 and also in column 6, lines 1-6;

(b) Fig 4. of Malagrino et al.teaches a control mechanism for generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame Buffer –420 used to store

fragment as disclosed in column 7, lines 31-62 and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(c) The limitation a cache for caching received fragments while the context is set to passive is taught by a Frame Buffer is used to store fragment until all the fragments of the fragmented packet are received as disclosed in column 7, lines 31-62 & column 8, lines 44-60.

(d) The limitation a routing mechanism for determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received is taught by controller using the contents IP packet to forward the packet appropriately as disclosed in column 11, lines 17-40 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.; and

(e) The limitation a forwarding mechanism for transmitting any cached fragments is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them into a datagram (see column 2, lines 30-58). At the time invention was made it would



have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

Regarding claim **25**, Fig. 9 teaches a program storage device (IP reassembly engine) readable by a machine, tangibly embodying a program of instructions executable by the machine to perform the method steps for routing a datagram that has been fragmented into a plurality of fragments (212) utilizing content-based routing (Class of Service) information included in one or more fragments of the plurality of fragments and also disclosed in columns 13, lines 10-65, column 6, lines 62-67 and column 7, lines 1-5,

(a) The limitation generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame Buffer —420 used to store fragment as disclosed in column 7, lines 31-62 and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(b) The limitation caching received fragments (store fragments) while the context is set passive is taught by a Frame Buffer is used to store fragment until all the

fragments of the fragmented packet are received as disclosed in column 7, lines 31-62 & column 8, lines 44-60.

(c) The limitation determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received is taught by bit mask information indicating the switching fabric where to forward the frame as disclosed in column 6, lines 62-66 and column 7, lines 1- 5 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

(d) The limitation routing any cached fragments and subsequently received fragments of the datagram to the determined destination while the context is active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them into a datagram (see column 2, lines 30-58). At the time invention was made it would have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

Regarding claim 37, Fig. 2 Malagrino et al. teaches a sever load balancer for routing a datagram that has been fragmented into a plurality of fragments (212) utilizing content-based (Class of Service) routing information included in one or more fragments of the plurality of fragments also disclosed in column 6, lines 62-67 and column 7, lines 1-30, the system comprising:

(a) The limitation a receiving mechanism for receiving the plurality of fragments of the datagram is taught by host H2 receiving the packet which has been fragmented into plurality of fragments as disclosed in Fig 2 and also in column 6, lines 1-6;

(b) Fig 4. of Malagrino et al. teaches a control mechanism for generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame Buffer –420 used to store fragment as disclosed in column 7, lines 31-62 and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(c) The limitation a cache for caching received fragments while the context is set to passive is taught by a Frame Buffer is used to store fragment until all the fragments of the fragmented packet are received as disclosed in column 7, lines 31-62 & column 8, lines 44-60.

(d) The limitation a routing mechanism for determining a destination for routing the plurality of fragments when content-based routing information included in the one or

more fragments is received is taught by controller using the contents IP packet to forward the packet appropriately as disclosed in column 11, lines 17-40 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.; and

(e) The limitation a forwarding mechanism for transmitting any cached fragments is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them into a datagram (see column 2, lines 30-58). At the time invention was made it would have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

Regarding claim 38, Fig. 2 Malagrino et al. teaches a system for routing a datagram that has been fragmented into a plurality of fragments (212) utilizing content-based (Class of Service) routing information included in one or more fragments of the plurality of fragments also disclosed in column 6, lines 62-67 and column 7, lines 1-5, the system comprising:

(a) The limitation a receiving mechanism for receiving the plurality of fragments of the datagram is taught by host H2 receiving the packet which has been fragmented into plurality of fragments as disclosed in Fig 2 and also in column 6, lines 1-6;

(b) Fig 4. of Malagrino et al. teaches a control mechanism for generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame Buffer -420 used to store fragment as disclosed in column 7, lines 31-62 and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(c) The limitation a cache for caching received fragments while the context is set to passive is taught by a Frame Buffer is used to store fragment until all the fragments of the fragmented packet are received as disclosed in column 7, lines 31-62 & column 8, lines 44-60.

(d) The limitation a routing mechanism for determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received is taught by controller using the contents IP packet to forward the packet appropriately as disclosed in column 11, lines 17-40 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.; and

(e) The limitation a forwarding mechanism for transmitting any cached fragments is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them into a datagram (see column 2, lines 30-58). At the time invention was made it would have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

Regarding claim 39, Malagrino et al. teaches a method for routing a datagram (packet 210) that has been fragmented into a plurality of fragments (smaller fragments 212) utilizing content-based routing (CoS) information included in one or more fragments of the plurality of fragments. The reference teaches packet 210 is fragmented to plurality of smaller fragments in a switch which uses Class of Service Information to route the data packet disclosed in column 5, lines 48-67, column 6, lines 1-6, lines 62-67 and column 7 lines 1-5.

(a) The limitation generating a context for the datagram (Frame Buffer-420) associated with routing the plurality of fragments of the datagram is taught by the step of a Frame Buffer —420 used to store fragment as disclosed in column 7, lines 31-62

and setting the context for the datagram to passive (frame buffer waits) until content-based routing information included in the one or more fragments is received is taught by frame buffer waits to remove plurality of fragments until all the fragments of the fragmented packet are received as disclosed in column 8, lines 10-15 and lines 44-60.

(b) The limitation determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received is taught by bit mask information indicating the switching fabric where to forward the frame as disclosed in column 6, lines 62-66 and column 7, lines 1- 5 and setting the context for the datagram to active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

(c) The limitation routing any cached fragments and subsequently received fragments of the datagram to the determined destination while the context is active is taught by when the entire frame is received data fragments are removed from the buffer as disclosed in column 8, lines 44-60.

Malagrino et al. fails to disclose the process forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. Schroeder et al. teaches a method of transmitting plurality of fragments without reassembling them into a datagram (see column 2, lines 30-58). At the time invention was made it would have been obvious to one in ordinary skill in art to add to the method of Malagrino et al. the process for forwarding the plurality of fragments into the without reassembling the plurality of fragments into the datagram. One in ordinary skill in art would have been

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motivated to do this to lower the latency associated with the receiving host for reassembling the data packets (see column 1, lines 60-65).

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Westbrook et al. (US 6,832,261), Marce et al. (US 6,880,017), Hughes et al. (US 5,842,040), Mulligan (US 6,212,190), Tasker (US 6,785,239) & Dempo (US 2001/0036185).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari  
Examiner  
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A handwritten signature in black ink, appearing to be 'Dang Ton', written in a cursive style.

DANG TON  
PRIMARY EXAMINER